Adm Policy Ment Health (2009) 36:176–185
DOI 10.1007/s10488-009-0215-1

ORIGINAL PAPER

Service Characteristics and Counseling Outcomes: Lessons from a Cross-Site Evaluation of Crisis Counseling After Hurricanes Katrina, Rita and Wilma

Fran H. Norris · Jessica L. Hamblen · Craig S. Rosen

Published online: 14 April 2009
© Springer Science+Business Media, LLC 2009

Abstract The 2005 hurricane season was the worst on record, resulting in disaster declarations and the implementation of federally-funded crisis counseling programs in five states. As part of a larger cross-site evaluation of these programs, data from 2,850 participant surveys, 805 provider surveys, and 132,733 encounter logs (submitted from 3 weeks before to 3 weeks after the participant surveys) were aggregated to the county level ($N = 50$) and used to test hypotheses regarding factors that influence program performance. County-level outcomes (aggregate ratings of participants' perceived benefits) improved as service intensity, service intimacy, and frequency of psychological referrals increased and as provider job stress decreased. The percent of providers with advanced degrees was indirectly related to participants' perceived benefits by increasing service intensity and referral frequency. The results yielded recommendations for achieving excellence in disaster mental health programs.

Keywords Disaster · Mental health services · Crisis counseling · Program evaluation

F. H. Norris · J. L. Hamblen · C. S. Rosen
National Center for Posttraumatic Stress Disorder, VAMC (116D), 215 North Main Street, White River Junction, VT 05009, USA

F. H. Norris (✉) · J. L. Hamblen
Dartmouth Medical School, Hanover, NH, USA
e-mail: fran.norris@dartmouth.edu

C. S. Rosen
Stanford University School of Medicine, Palo Alto, CA, USA

Introduction

On August 29, 2005, Hurricane Katrina caused catastrophic damage in Louisiana, Mississippi, and Alabama, and within 2 months, Hurricanes Rita and Wilma took their own tolls on Louisiana, Texas, and Florida. States moved quickly to plan services that would help survivors to rebuild their lives. Often these services took the form of crisis counseling programs (CCPs), funded by grants from the Federal Emergency Management Agency (FEMA), with technical assistance and administrative oversight from SAMHSA's Center for Mental Health Services (CMHS). CCPs address the short-term mental health needs of communities affected by disasters through public education, outreach, crisis counseling, and referral to other sources of assistance. Crisis counselors aim to help disaster survivors understand their current situation, reactions, and options, with the goal of normalizing distress and help-seeking. Crisis counseling is often provided by trained paraprofessionals going door-to-door or in community settings, such as schools, churches, and places of work (Flynn 1994). Encounters are usually brief, rarely over 30 min and rarely involving more than one visit or two (Norris and Bellamy 2009).

There is little systematic evidence of the benefits of crisis counseling and little empirical information that either supports or refutes program assumptions. After Hurricane Katrina, the administrators of the CCP implemented, for the first time, a standardized data collection system for cross-site evaluation. This system aimed to document the reach, quality, and consistency of the program through routine collection of individual and group encounter logs and periodic surveys of providers and participants (i.e., clients). The scope of Katrina/Rita/Wilma (encompassing over 100 disaster-declared counties in five states) provided

an unprecedented opportunity to examine how natural variations in service delivery across these many sites were associated with program participants' perceived benefits. This enabled us to examine longstanding but untested assumptions that underlie the crisis counseling approach to postdisaster mental health service provision.

The assessment of counseling outcomes is quite challenging for these programs because of their non-clinical, community-outreach approach and the anonymity of participation, which precludes administration of pre-service measures or systematic follow-up. In contexts like this, one outcome that has been used frequently in the evaluation of human service programs is "client satisfaction," an approach that gives program participants a voice in evaluating the quality of the service (Larsen et al. 1979). To our knowledge, there has been only one previous rigorous attempt to evaluate participants' satisfaction with crisis counseling services. After the September 11th terrorist attacks in New York City, 600 CCP participants completed anonymous questionnaires or telephone interviews, and 89% rated "Project Liberty" as either good or excellent across different aspects of service quality and effectiveness (Jackson et al. 2006). Project Liberty and their academic partners provided important evidence that it was possible to integrate evaluation activities into CCPs, which previously had placed relatively little emphasis on using data to guide program practice and policy.

Our goal for this evaluation was not so much to determine the overall level of satisfaction with services but rather to determine how participants' perceptions of benefit were influenced by program actions. We were guided by the program logic model in Fig. 1 (Rosen et al. 2006), which portrays a variety of outcomes as a function of program activities that, in turn, are influenced by event characteristics, community characteristics, and program inputs. From this model, we generated directional hypotheses for analyses predicting area-level counseling outcomes. First, we proposed that the quality of area-level outcomes (aggregate ratings of perceived benefits) would increase with service intensity and service intimacy. Several reviews have questioned whether single-session postdisaster interventions can deliver meaningful benefits (e.g., Gibson et al. 2006). We should be cautious about extending these concerns to crisis counseling which does not aim to treat disorder but to provide support, information, and referral to the general public. Nonetheless, we believed that service areas characterized by higher proportions of participants being counseled more intensely (through either longer or repeated visits) or intimately (i.e., in private homes rather than public places) would achieve superior benefits than would areas where proportionately few participants received more than the minimal service.

Second, we hypothesized that the quality of counseling outcomes would increase with the frequency of referrals to other services, especially to psychological services. Such findings would support assumptions that referral is a critical program activity. Evidence is limited, but previous evaluations have suggested that only about 7–9% of CCP participants are referred for further psychological assistance (Covell et al. 2006b; Rosen and Young 2005). Practitioners, such as physicians and social workers, are generally poor at recognizing mental health needs (Stithman et al. 2004), and in the aftermath of disaster, psychological needs may be overshadowed by the urgency of tangible needs.

Third, we proposed that the quality of counseling outcomes would decrease with provider job stress. Provider stress arises from both vicarious trauma and organizational factors, such as workload, staff tensions, and uncertain funding (Norris et al. 2006; Wee and Myers 2002). Because each worker may intersect with a multitude of survivors, meeting (and anticipating) disaster workers' needs may be critical for meeting survivors' needs. To our knowledge, the influence of provider stress on participant outcomes has not been examined empirically.

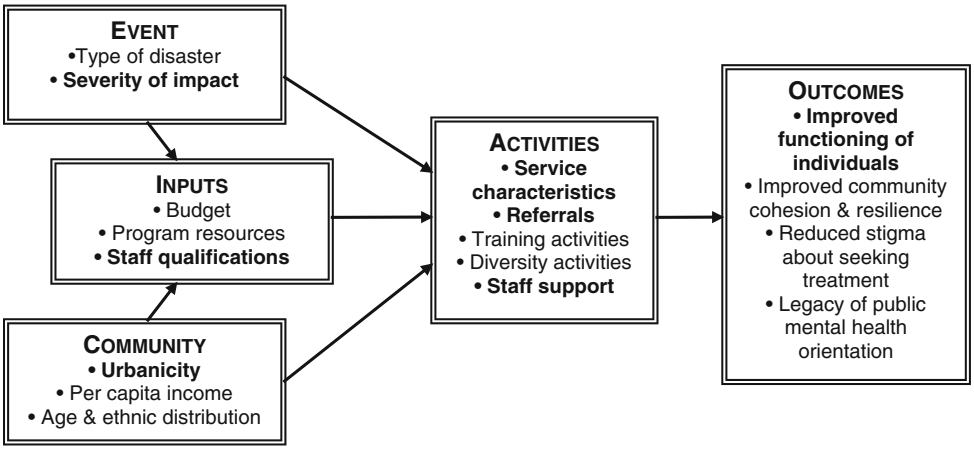

Fig. 1 Program evaluation logic model relating event characteristics, community characteristics, program inputs, and program activities to program outcomes. The indicators in *boldface* are examined in this analysis

Finally, we proposed that program activities would be influenced by event characteristics (severity of losses in the area), community characteristics (urbanicity, a proxy for area resources), and program inputs (specifically the percent of providers with advanced degrees). Consistent with Fig. 1, the influence of these factors on the quality of area-level counseling outcomes was hypothesized to be indirect through their influences on program activities.

Method

Sample

Fifty counties met the three criteria for inclusion in this analysis: (1) a presidential disaster declaration during the 2005 hurricane season; (2) ten or more respondents to the participant survey, and (3) two or more respondents to the provider survey. The more liberal criterion for providers allowed us to include smaller counties that were served by only two or three crisis counselors. Although this number represents only about half of the declared counties, the declarations included many counties where disaster damages were modest and services were uncommon. Qualifying counties included all those on and near the coasts where the hurricanes made landfall and inland cities where displaced residents often lived. Of the 50 counties, 27 (54%) were in Mississippi (Katrina), 16 (32%) were in Louisiana (Katrina and Rita), 4 (8%) were in Florida (Wilma), 2 (4%) were in Alabama (Katrina), and 1 (2%) was in Texas (Rita).

Data Sources and Selected Measures

We used four different sources of data: archival/census data (to characterize the areas), individual crisis counseling encounter logs, provider surveys, and participant surveys. Data collection tools were approved by the Office of Management and Budget in September 2005. Methods varied, so each source will be described separately.

Archival/Census Data

We used an ordinal measure of urbanicity as a proxy for local resources downloaded from www.arfsys.com and recoded so that the maximum value (6) was for *central city* and the minimum value (1) was for *non-core non-metro*.

Individual Crisis Counseling Encounter Logs

Counselors recorded basic descriptive information about each individual encounter on a one-page form. Because the participant survey provided the primary dependent variable, we sampled encounters occurring from 3 weeks before to 3 weeks after each survey week. Counselors recorded the zip code of service, and we used a zip code database to assign encounters to county. A zip code can cross county lines but has a primary county based on the distribution of addresses. In these zip codes, the average proportion of addresses in the primary county was .96, suggesting that the county designation was likely to be accurate for the vast majority of logs.

Counselors chose one of four categories to describe the duration of the encounter: *15–29 min*, *30–44 min*, *45–60 min*, or *longer than 60 min*. They also recorded whether the visit was the individual's *first*, *second*, *third*, *fourth*, or *fifth or more*. Counselors noted the location of service by checking standard categories or by writing the location in a box for "other." We examined three clusters of locations: *home*, which included temporary as well as permanent residences and homes of family members and friends; *service centers*, which included offices of government and social services and disaster relief centers; and *public places*, such as retail centers (malls, restaurants), street corners, festivals, and other special events. Counselors checked whether they referred the individual to other crisis counseling services, disaster relief services, mental health treatment, substance abuse treatment, or other services. We combined referrals to mental health treatment, substance abuse treatment, and relevant "other" referrals (e.g., grief counseling, anger management, AA) into a new variable, psychological services.

Individual encounter logs were not linked, making it impossible to know if a particular person was represented by more than one log within the 14 weeks sampling frame (3 weeks before to 3 weeks after each survey). The unit of analysis prior to county-level aggregation was therefore encounter, rather than person.

Provider Surveys

The provider survey was conducted twice, approximately 6 and 12 months postdisaster. Data from the two surveys were combined for these analyses. Counselors were eligible for the survey if they had been working in the program at least 1 month. In the month before the survey, the evaluators held conference calls with teams from each state to review the content and purpose of the survey and to describe procedures. The evaluators prepared the surveys and sent them to the states, which in turn distributed the surveys to provider organizations, which in turn distributed the surveys to eligible crisis counselors. Counselors completed the two-page survey anonymously and returned them by mail directly to the evaluators. The overall response rate in these five states was 50%. County-level provider response rate cannot be derived because we do not

know how many counselors were assigned to each county by state administrators.

Providers reported the county or parish in which they worked mostly. Provider education was categorized as *less than a college* (*bachelor's*) *degree*, *college degree*, or *advanced degree* (*masters or doctoral*). Job stress was measured using 5 questions on a 5-point scale ($\alpha = .85$) that assessed the extent to which the work, or the counselor's reactions to it, led to distress, reduced stress tolerance, health risk behaviors, role interference, or reduced social functioning. Scale scores ranged from 5 to 25.

Participant Surveys

During 1 week (precisely 7 days) in April (Mississippi, Alabama), May (Louisiana), or August 2006 (Florida), a brief survey was distributed to all adults participating in face-to-face crisis counseling. The second survey occurred during 1 week in August (Mississippi, Alabama), October (Louisiana), November (Florida), or December 2006 (Texas). Data from the two survey weeks were combined for these analyses; the percentage of records collected during the second week was uncorrelated with mean participant rating ($r = .06$, *ns*). In the month before the survey, the evaluators held conference calls with teams from each state to describe procedures. The evaluators prepared the master survey, cover letter, and training materials and sent them to the states, which in turn created the survey packets and distributed them to crisis counselors to distribute to eligible participants. The packet contained a copy of the two-page survey, a pen, and a stamped addressed return envelope. Counselors were instructed to introduce the survey when their conversation with the participant was winding down, and they were told that they could not help the participant to complete it. Participants completed the surveys anonymously and returned them by mail to the state's evaluation coordinator.

Response rates were estimated on the basis of the encounter logs submitted for the same days in which the surveys were conducted. This approach takes into account both potential forms of noncompliance: (a) counselors not giving out the survey as instructed and (b) participant nonresponse. The overall response rate was 18%; the average response rate across these 50 counties was 28%. The overall rate was comparable to that reported by the Project Liberty (14% of surveys handed out by counselors; Covell et al. 2006a). Survey demographics matched those of the log data, except that women were overrepresented. Therefore % female was controlled in analyses. Importantly, at the county level, the response rate was unrelated to average perceived benefits, $r = .00$. Concerns regarding bias would be greater if higher response rates had been associated with poorer outcomes.

The two-page survey instrument was drafted by the evaluators in late 2004, reviewed by staff at CMHS and focus groups of crisis counselors in New York and California (Young and Donahue 2005), and revised in accord with their feedback. After Hurricane Katrina, the language of the survey was revised downward by Louisiana's evaluation director to a reading level of approximately 5th grade. This version was circulated among project leaders in Mississippi for comments. The survey was translated into Spanish by a professional translation service and reviewed by Florida's evaluation director for its appropriateness.

Participants were instructed to "check all that apply" from a list of 13 disaster stressors. An exploratory factor analysis yielded two factors that appeared to conform to constructs of trauma and loss. Traumatic stressors included threat to life, injury, witnessing death or injury, family member missing or dead, friend or co-worker missing or dead, and rescue/recovery work. Losses included community destruction, home damage, displacement, sudden evacuation, disaster-related unemployment, financial loss, and separation from family.

The Counseling Outcomes and Experiences Scale (COES; see "Appendix") assessed the extent to which the counselor (a) created an encounter characterized by respect, cultural sensitivity, and sense of privacy and (b) achieved realistic immediate outcomes (e.g., reducing stigma of help-seeking, normalization of reactions, increased coping skills) as perceived by the participant. The content of this scale was influenced by the survey developed by Project Liberty (Jackson et al. 2006) and results from extensive interviews with crisis counselors (e.g., Norris et al. 2006) and project directors (Elrod et al. 2006). The COES has 10 items ($\alpha = .95$) scored on a 10-point scale from *worst* = 1 to *best* = 10, yielding a maximum score of 100. The 10-point response format was used to overcome the positive biases generally observed in measures of consumer satisfaction. To adjust for missing data, the total scale was scored as the mean of valid items multiplied by 10.

Data Analysis

The data from 132,733 individual counseling encounters, 805 provider surveys, and 2,850 participant surveys were aggregated and merged and used to study counseling outcomes (average perceived benefits) at the county level. Aggregation converts raw data to summary statistics (e.g., percents, means) and allows dissimilar data to be merged according to a common denominator. If the construct of counseling outcomes has merit as a county-level variable, *between*-county variance should exceed that of *within*-county variance on the COES (O'Brien 1990). This was the case: MS county = 1,351, MS participants within county = 285, F (50, 2,793) = 4.73, $P < .001$.

Other than descriptive statistics showing the distribution of indicators, we focused on correlational analyses. Because the total number of counties was 50, statistical power was limited. We therefore carefully planned the analyses to have unidirectional hypotheses that allowed one-tailed tests at $P < .05$. The study questions would have lent themselves well to path analysis, but the county-level N was smaller than usually recommended for that approach. Thus we tested the hypotheses in separate multiple regression analyses rather than by using simultaneous equations. For the primary analysis of the direct effects of program activities on counseling outcomes, we restricted the number of independent variables to five. For the supplementary analyses of the indirect effects of event, community, and input characteristics on counseling outcomes, it was necessary to include six variables in the equations.

Results

Variability of Measures Across Counties

Table 1 presents descriptive information on variables organized by source. There was striking variability across the 50 counties, which facilitated our basic strategy of examining whether natural geographic variations in service patterns correlated with participants' perceived benefits (*M* COES). The counties themselves varied from very rural (1) to very urban (6). On average, only 22% of these encounters lasted 30 min or longer, but across counties, this ranged from 1 to 73%. Similarly, 20% the encounters were re-visits, but this percentage ranged from <1 to 67%. These two indicators were highly correlated, $r = .79$, $P < .01$, and were summed to create a summary measure of service intensity. There was also variation across counties in the distribution of service location. Counselors in some areas conducted almost all encounters in homes, but homes accounted for as few as 18% of encounters in other counties. We used % in homes as an indicator of service intimacy in the primary analysis. It was positively correlated with *M* COES, $r = .30$, $P < .05$, whereas % in public places was negatively correlated, $r = -.39$, $P < .01$, and % in community institutions was uncorrelated with *M* COES, $r = -.04$.

On average, only 3% of participants were referred to psychological services, but the frequency of these referrals was marginally correlated with *M* COES in the area, $r = .22$, $P = .07$, whereas the frequencies of referrals to other crisis counseling, $r = .05$, ns, or disaster relief services, $r = .18$, ns, were uncorrelated with *M* COES. Because it was the strongest correlate (and because the number of potential predictors was constrained by the county-level *N*), only the frequency of psychological referrals was included in the primary regression model. However, in a supplemental analysis, we also included frequency of referrals to disaster relief services.

Table 1 Descriptive statistics for the 50 included counties/parishes by data source

Variable	Minimum	Maximum	*M*	*SD*
Archival and census data				
Urbanicity of service area	1.0	6.0	3.1	1.4
Counseling encounter logs				
Number of encounters (14 weeks)	79	20,800	2,655	4,179
% of encounters >30 min	0.7	72.9	22.3	19.2
% of encounters 2nd or greater	0.3	66.8	19.6	19.9
% of encounters in homes	18.3	96.8	58.1	17.3
% of encounters in service centers	1.3	69.6	25.9	14.0
% of encounters in public places	0.1	37.5	10.9	9.1
% referred to crisis counseling	0.0	70.5	23.2	19.9
% referred to disaster relief services	3.3	99.5	57.3	28.1
% referred to psychological services	0.0	17.0	2.6	3.1
Provider survey				
Provider survey *n*	2	80	16.1	19.8
% of providers with advanced degrees	0.0	73.3	24.4	22.4
Job stress *M*	5.0	15.0	7.5	1.8
Participant survey				
Participant survey *n*	10	375	57.0	76.9
Losses *M*	1.1	6.1	3.4	1.0
Trauma *M*	0.2	2.5	0.9	0.5
COES *M*	61.7	96.8	86.6	7.3
% female	41.7	91.3	69.0	11.3
% Black or African American	0.0	100.0	43.9	28.4
% 65+	0.0	80.0	20.4	14.8

On average, 16 provider surveys were completed for each county (range 2–80, total $N = 805$). The percent of providers with advanced degrees ranged from 0 to 73%, and *M* job stress ranged from 5 (equivalent of experiencing none of the measured stress reactions) to 15 (equivalent of experiencing all 5 stress reactions to a moderate degree).

Across the 50 counties, the number of participant surveys returned was distributed unevenly (10–375, $M = 57$)

Table 2 Correlations between study variables ($N = 50$)

	1	2	3	4	5	6	7	8	9
1. Counseling outcomes (*M* COES)[a]	–								
2. Service intensity (% 2nd and higher + % 30 min and longer)[b]	.35**	–							
3. Service intimacy (% in homes)[b]	.30**	−.02	–						
4. Frequency (%) of psychological referrals[b]	.22	.12	−.26**	–					
5. Provider job stress *M*[c]	−.28*	.35**	−.18	.13	–				
6. Severity of loss in the area (participant loss *M*)[a]	.21	.31*	.03	.25*	.25*	–			
7. Urbanicity[d]	−.03	.02	−.12	.36**	.11	.24*	–		
8. Percent of providers with advanced degrees[c]	.25*	.33*	−.11	.37**	.10	.26*	.37**	–	
9. Percent of survey participants female (% female)[a]	.26**	−.19	.07	−.04	−.14	.12	−.05	−.02	–

All data were aggregated to county level

COES counseling outcomes and experiences scale

* $P < .05$, ** $P < .01$

[a] Participant survey

[b] Counseling encounter logs

[c] Provider survey

[d] Archival data

but proportionally to the number of individual encounters, $r = .87$, $P < .01$. *M* loss ranged from 1 to 6 (nearly the full range of the measure) across counties and it showed a stronger correlation with *M* COES ($r = .21$, $P < .10$) than did *M* trauma ($r = .04$, *ns*). Loss also showed a stronger ratio of between-county to within-county variance (MS between = 44.54, MS within = 3.30), F (50, 3,101) = 13.48, $P < .001$, than did trauma, (MS between = 13.66, MS within = 1.77), F (50, 3,101) = 7.70, $P < .001$. Thus, severity of loss seemed a better indicator of area-level event characteristics than did trauma exposure, which varied more across individuals within areas.

The *M* COES score of 87 was very good, but with room for improvement. *M* COES scores varied widely. Twenty counties (40%) scored in the excellent range (≥90), 24 (48%) in the good range (80–89.9), and 6 (12%) scored fair or poor (<80).

Correlations and Regressions

Primary Analysis of Direct Effects

Table 2 shows the correlations between the nine variables included in the primary analysis, and Table 3 shows the multiple regression results. In the primary analysis, *M* COES (aggregate perceived benefits) was regressed on the four activity variables (service intensity, service intimacy, frequency of psychological referrals, and provider job stress) and the covariate (% female). These variables explained a striking 52% of the geographic variance in *M* COES (R^2 adjusted = .47), F (5, 44) = 9.61, $P < .001$. Each variable made a significant, independent contribution to *M* COES. Average participant ratings in the service area increased as service intensity, service intimacy, referral frequency, and % female increased, and as provider job stress decreased.[1] These results strongly supported study hypotheses.

Supplementary Analyses of Indirect Effects

We had also proposed that the effects of the event, community, and input variables on counseling outcomes would be indirect through their influence on program activities. There was only limited support for this hypothesis.

Severity of loss (the event characteristic) was positively correlated with service intensity and referral frequency, but it was also positively correlated with provider job stress (Table 2). When urbanicity and provider education were controlled, loss was no longer related to referral frequency, $\beta = .13$, *ns*, but it continued to be significantly related to service intensity, $\beta = .27$, $P < .05$, and marginally related to job stress, $\beta = -.23$, $P < .10$. *M* loss was marginally related to *M* COES before the five primary predictors were taken into account ($\beta = .21$, $P < .10$) and unrelated afterwards (β in = .11, *ns*), but the difference was not large enough to support the hypothesis (indirect effect = .14, $SE = .12$, $z = 1.20$, *ns*). The inclusion of loss in the

[1] This analysis was repeated with the frequency of referrals to disaster relief services included as a sixth predictor, $R^2 = .53$, F (6, 43) = 8.03, $P < .001$. Frequency of disaster relief referrals was unrelated the outcome variable, $\beta = .02$, *ns*. The coefficients of the original variables were essentially unchanged; all *P* levels were the same.

Table 3 Results of primary regression analysis predicting county-level counseling outcomes ($N = 50$)

Predictor variable	*B*	*SE B*	*β*
Service intensity	0.08	0.02	.40***
Service intimacy	0.11	0.05	.25*
Frequency of psychological referrals	0.59	0.26	.25*
Provider job stress	−1.73	0.45	−.44***
% female	0.39	0.14	.30**

County-level counseling outcomes were means on the counseling outcomes and experiences scale (*M* COES)

* $P < .05$, ** $P < .01$, *** $P < .001$

equation predicting *M* COES did not change any of the effects noted in Table 3 (i.e., all betas were within ±.02 and all *P* values were the same.)

Urbanicity (the community characteristic) was strongly related to the frequency of referrals to psychological services (Table 2); the more urban the county, the higher the frequency of referrals. This relation held with loss and provider education controlled, $\beta = .24$, $P < .05$. However, urbanicity was not related to *M* COES either before ($\beta = -.03$) or after (β in $= -.05$) the primary predictors were entered and, accordingly, there was no support for the hypothesis (indirect effect = .04, $SE = .12$, $z < 1$).

The percent of providers with advanced degrees (the input characteristic) was significantly related to service intensity and frequency of psychological referrals, both of which were positively related to *M* COES. The effect of provider education on service intensity held when loss and urbanicity were controlled, $\beta = .32$, $P < .01$, as did its effect on psychological referrals, $\beta = .25$, $P < .05$. The percent of providers with advanced degrees was related to area-level counseling outcomes before the primary predictors were entered ($\beta = .26$, $P < .01$) but not after (β in $= .11$, *ns*), thereby supporting the hypothesis in this case (indirect effect = .21, $SE = .12$, $z = 1.74$, $P < .05$). The inclusion of provider education in the equation predicting *M* COES did not change any of the effects noted in Table 3.

Discussion

The federally funded CCP is the primary vehicle through which disaster victims receive mental health services. Inaugurated in the 1970s as a result of the Stafford Act, the program initially gave little attention to evaluation but in recent years has become committed to increasing its evidence base. Prior to this cross-site evaluation of 2005-hurricane programs, the quality of any evaluation was very much determined by the grantee; some programs, like Project Liberty, conducted extensive evaluation, whereas others did little more than tally services, according to varying definitions. To our knowledge, this cross-site evaluation has been the very first to combine participant ratings with service records and provider surveys to test a model of how the program is assumed to function.

To be sure, the evaluation had limitations. It was clearly not a "clinical trial" with participants randomly assigned to services of different intensities; we could study only naturally-occurring variations in counseling practices. However, when clinical trials are not feasible, theory-driven analyses of natural variations in practice can be a valuable source of insights to inform service delivery (Horn et al. 2005). Despite the massive amount of data (132,733 encounter logs, 805 provider surveys, 2,850 participant surveys), the county-level *N* of 50 required us to keep our questions focused on a few primary variables. The generalizability of the findings to less severe disasters is unknown. Response rate for the participant survey was low, although comparable to those of similar surveys. The layers of administration, the brevity of the service, and the lack of incentives likely all contributed to non-response. Our insistence that counselors not help the participants (which precluded "on the spot" completion) may have been another factor, but we felt any gains in compliance would be offset by reduced candor on the COES. State coordinators also shared their anecdotal observations that Katrina victims had been besieged with aid applications, needs assessments, and research requests that may have reduced their cooperation. We clearly have additional work to do on researching methods to bring participants' voices into the evaluation process (see, for example, Covell et al. 2006a). These concerns notwithstanding, there was little evidence of differential response and consequent bias for model testing. In these 50 counties, participant survey *n* correlated almost perfectly (.87) with the number of encounters and not at all (.00) with average COES scores. Therefore, despite these limitations, we believe this evaluation represents a scientific advancement and illustrates an approach to testing assumptions that underlie the design of community-based postdisaster programs.

We will summarize our results in terms of four primary findings. The first was the marked variability in service delivery practices in the average length of encounters, the emphasis on follow-up, and where the encounters took place. Federal guidelines do not require that all programs be just alike but rather encourage leadership to tailor the program to local needs and conditions. The correlations of area loss and urbanicity with program activities provided some evidence that this does occur. Overall, however, these correlations were modest, raising the question of whether variation in service characteristics was truly the result of careful consideration of local needs and conditions or a side effect of using a variety of provider organizations with

different philosophies of service provision. We cannot answer this question but believe these issues should be addressed with grantees and researched further. States can and should monitor consistency across service areas throughout their response.

The second primary finding was that area service characteristics were strongly correlated with participants' perceived benefits. Because participants were generally positive about their experiences, averaging 87 on a 100-point scale, our analyses had more to do with distinguishing excellence from adequacy than adequacy from failure, as manifest in participants' ratings. More specifically, participants had better average ratings in counties that offered more intensive services through either longer visits or more repeat visits. These service characteristics tended to occur together ($r = .79$), meaning that they likely reflect a particular stance toward service delivery. Counties where counselors saw a higher percentage of participants in homes also tended to receive better ratings, whereas counties where counselors saw a higher percentage of participants in public spaces (on the street, in retail centers, at events) tended to have poorer ratings. We labeled this variable "service intimacy" to highlight the fact that it may not actually be the place that matters but rather how well the setting elicits privacy, empathy, sharing of reactions, and attention to the information that is being provided. In other words, the "take home point" is not necessarily to encourage home visits but to emphasize settings that allow the participant to engage fully in the interaction.

The third primary finding was the association between referral frequency and county-level outcomes; areas that had higher frequencies of psychological referrals also had better ratings of benefit, on average. Frequency of psychological referrals may be a useful program gauge of the extent to which counselors are engaging meaningfully with participants to explore their mental health needs. The bad news, however, is how few of these adults (3% on average) were referred to more intensive interventions although epidemiologic research on Hurricane Katrina has found high prevalences of posttraumatic stress disorder and major depression (Galea et al. 2007; Kessler et al. 2008; Larrance et al. 2007). The policy issue of what the public sector should do for persons who need more than crisis counseling is one that recurs periodically (Pfefferbaum et al. 2002; Norris et al. 2006; Weisler et al. 2006). The reach and quality of the CCP must be judged according to what the program is designed to do, and it is not charged with delivering treatment. However, as leaders in disaster mental health, the national program can call attention to this gap in the federal response plan, and ensure that local providers are skilled at making referrals to mental health care when appropriate. This recommendation is not meant to imply that all or even the majority of crisis counseling participants should be referred for treatment, and in fact, the maximum frequency across these counties was 17%. Most people are resilient, but counselors can do a better job of identifying and meeting the psychological needs of participants who need more than crisis counseling to get by.

The fourth primary finding has to do with the apparent influence of providers on participants' perceptions of benefit. This influence occurred directly through their reported levels of job stress and indirectly through the attributes they brought to their work. Areas where providers were more stressed received poorer ratings. Past evaluations have provided minimal information about the impact of provider stress on the quality of the work they do, and thus the capacity to examine this was an advantage of the cross-site evaluation. Job stress levels were significantly correlated with the county's severity of losses, suggesting that some counselors are at greater risk than others for experiencing high stress. Although vicarious trauma may be one factor, the strongest correlate of counselor stress in the provider survey was work resource quality, and most counselors' open-ended comments reinforced this point (Norris 2007).

The issues of provider training and education are important and recurring ones for CCPs because these programs employ a mix of professional and paraprofessional counselors. A fundamental assumption of the crisis counseling model is that crisis counseling may be performed appropriately and effectively by trained paraprofessionals. In light of these issues, our finding regarding provider education needs to be considered carefully. The analysis indicated that the percent of providers with advanced degrees was predictive of higher participant ratings in an area because it was associated both with greater service intensity and with higher frequency of referrals, which were significantly and positively related to average perceived benefits. It is important to understand that this finding does not necessarily mean that professionals were better counselors than paraprofessionals. This analysis was about areas, not individual providers. The benefits may have occurred because professional counselors were available for supervision or advice or for following up with people whose psychological needs were higher than others. Through these influences, the participants themselves were more likely to receive a longer visit and/or a follow-up visit, and they were more likely to receive a psychological referral. Thus this finding is not an argument for abandoning a crisis counseling model for a clinical model.

Our findings yield four key recommendations for achieving excellence in crisis counseling programs after major disasters, as manifest in participants' perceived benefits. First, programs should aim to provide more intensive and intimate services to disaster victims. This recommendation needs to be balanced with program goals to provide outreach and psycho-education to the community at large. We are not suggesting that all encounters be longer than present norms, but programs should encourage their workers to take enough time to explore participants' distress and needs. Excessive focus on "the numbers" (i.e., seeing lots of people) may interfere with the quality of counseling encounters. The findings also generally support grantees' frequently expressed opinion (Elrod et al. 2006; Norris et al. 2006) that more follow-up would be helpful for disaster survivors, whether by means of a case management strategy or some other approach. Program guidelines that emphasize anonymity are well-intended but make it difficult to create systematic records for following up. Second, programs should aim to increase the frequency of psychological referrals. This may require work on several fronts: increasing the availability, accessibility, and affordability of mental health services, educating counselors about these services, and increasing counselors' skill and comfort level in recognizing mental health needs. Third, programs should aim to reduce counselor stress by providing appropriate supervision, support, and the resources workers need to do their jobs. These activities will benefit counseling participants. Fourth, programs should aim to employ an ample number of professional counselors to provide this supervision and support and to follow up on participants whose needs may be greater than the paraprofessionals are trained to meet.

In closing, it is hoped that the findings of this cross-site evaluation will be useful to program planners and others who care about the mental health needs of disaster survivors. To see the full benefits of a standardized evaluation approach requires a long-term perspective. Many of the advantages arise from the cumulative record and the evolving norms and benchmarks it provides. Despite the magnitude of the present effort, we are only at the beginning of what should become an ongoing process of documenting achievements, building an evidence base for disaster mental health programs, and promoting and testing innovations in service delivery.

Acknowledgments This project was supported by an interagency agreement between the Substance Abuse and Mental Health Services Administration and the Department of Veterans Affairs National Center for Posttraumatic Stress Disorder (NCPTSD), Executive Division, White River Junction, VT, and the National Consortium for the Study of Terrorism and Responses to Terrorism (START; grant number N00140510629), a Center of Excellence in the Social and Behavioral Sciences funded by the Department of Homeland Security. Opinions, findings, and conclusions in this document are those of the authors and do not necessarily reflect the views of SAMHSA, the VA, or DHS.

Appendix

Counseling Outcomes and Experiences Scale

How would you rate the program, counselor, or outreach worker on the following areas? In the boxes at right, please "X" the box that best represents your opinion where "1" is the *worst* rating and "10" is the *best* rating.

1. How good was the information you got on how people feel after disasters? Was that information the best it could be (10), the worst it could be (1), or somewhere in-between (2–9)?
2. How good of a job did the counselor or outreach worker do helping you to know that your feelings after the disaster were the same as many other people's feelings?
3. How good of a job did the counselor or outreach worker do treating you with respect?
4. How good of a job did the counselor or outreach worker do respecting your culture, race, ethnicity, or religion?
5. How good of a job did the counselor or outreach worker do making you feel that asking for help is okay?
6. How good of a job did the counselor or outreach worker do making you feel that you can help yourself or your family?
7. How good of a job will the counselor or outreach worker do keeping things you said private?
8. How good of a job did the counselor or outreach worker do helping you to find ways to take care of yourself, like eating right and getting enough sleep?
9. How good of a job did the counselor or outreach worker do helping you to stay active in things like hobbies, sports, church, or volunteer work?
10. How good of an idea is it to tell a friend who was upset by the disaster to see this counselor or outreach worker?

References

Covell, N., Donahue, S., Ulaszek, W., Dunakin, L., Essock, S., & Felton, C. (2006a). Effectiveness of two methods of obtaining feedback on mental health services provided to anonymous recipients. *Psychiatric Services, 57*, 1324–1327.

Covell, N., Essock, S., Felton, C., & Donahue, S. (2006b). Characteristics of Project Liberty clients that predicted referrals to

intensive mental health services. *Psychiatric Services, 57*, 1313–1315.

Elrod, C., Hamblen, J., & Norris, F. (2006). Challenges in implementing disaster mental health programs: State program directors' perspectives. *The Annals of the American Academy of Political and Social Science, 604*, 152–170.

Flynn, B. (1994). Mental health services in large scale disasters: An overview of the Crisis Counseling Program. *NCP Clinical Quarterly, 4*, 1–4.

Galea, S., Brewin, C. R., Gruber, M., Jones, R. T., King, D. W., King, L. A., et al. (2007). Exposure to hurricane-related stressors and mental illness after hurricane Katrina. *Archives of General Psychiatry, 64*, 1–8.

Gibson, L., Hamblen, J., Zvolensky, M., & Vujanovic, A. (2006). Evidence-based treatments for traumatic stress: An overview of the research literature with an emphasis on disaster settings. In F. Norris, S. Galea, M. Friedman, & P. Watson (Eds.), *Methods for disaster mental health research* (pp. 208–225). New York: Guilford.

Horn, S. D., DeJong, G., Ryser, D. K., Veazie, P. J., & Teraoka, J. (2005). Another look at observational studies in rehabilitation research: Going beyond the holy grail of the randomized controlled trial. *Archives of Physical Medicine and Rehabilitation, 86*, S8–S15.

Jackson, C., Allen, G., Essock, S., Felton, C., & Donahue, S. (2006). Clients' satisfaction with Project Liberty counseling services. *Psychiatric Services, 57*, 1316–1319.

Kessler, R. C., Galea, S., Gruber, M. J., Sampson, N. A., Ursano, R. J., & Wessely, S. (2008). Trends in mental illness and suicidality after Hurricane Katrina. *Molecular Psychiatry, 13*, 374–384.

Larrance, R., Anastario, M., & Lawry, L. (2007). Health status among internally displaced persons in Louisiana and Mississippi travel trailer parks. *Annals of Emergency Medicine, 49*(5), 590–601.

Larsen, D., Attkisson, C., Hargreaves, W., & Nguyen, T. (1979). Assessment of client/patient satisfaction: Development of a general scale. *Evaluation and Program Planning, 2*, 197–207.

Norris, F. (2007). *Cross-site evaluation of the Crisis Counseling Program: 2005 Hurricanes (Katrina, Wilma, Rita), final report*. White River Junction, VT: National Center for PTSD.

Norris, F., & Bellamy, N. (2009). Evaluation of a national effort to reach Hurricane Katrina survivors and evacuees: The Crisis Counseling Assistance and Training Program. *Administration and Policy in Mental Health and Mental Health Services Research*. doi:10.1007/s10488-009-0217-z.

Norris, F., Hamblen, J., Watson, P., Ruzek, J., Gibson, L., & Pfefferbaum, B. (2006). Understanding and creating systems of postdisaster care: A case study of New York's mental health system's response to the World Trade Center Disaster. In C. Ritchie, P. Watson, M. Friedman, et al. (Eds.), *Mental health intervention following disasters or mass violence*. New York: Guilford Press.

O'Brien, R. (1990). Estimating the reliability of aggregate-level variables based on individual-level characteristics. *Sociological Methods and Research, 18*, 473–504.

Pfefferbaum, B., North, C., Flynn, B., Norris, F., & DeMartino, R. (2002). Disaster mental health services following the 1995 Oklahoma City bombing: Modifying approaches to address terrorism. *CNS Spectrums, 7*, 575–579.

Rosen, C., & Young, H. (2005). Quantitative analysis of archival data from crisis counseling grants. In F. Norris, C. Rosen, C. Elrod, H. Young, L. Gibson, & J. Hamblen (Eds.), *Retrospective 5-year evaluation of the Crisis Counseling Program* (pp. B9–B42). White River Junction, VT: National Center for PTSD.

Rosen, C., Young, H., & Norris, F. (2006). On a road paved with good intentions, you still need a compass: Monitoring and evaluating disaster mental health services. In C. Ritchie, P. J. Watson, & M. J. Friedman (Eds.), *Mental health intervention following disasters or mass violence* (pp. 206–226). New York: Guilford.

Stithman, A., Pescosolido, B., & Cabassa, L. (2004). Building a model to understand youth service access: The gateway provider model. *Mental Health Services Research, 6*, 189–198.

Wee, D., & Myers, D. (2002). Stress response of mental health workers following disaster: The Oklahoma City bombing. In C. Figley (Ed.), *Treating compassion fatigue* (pp. 57–83). New York: Brunner-Routledge.

Weisler, R., Barbee, J., & Townsend, M. (2006). Mental health and recovery in the Gulf Coast after Hurricanes Katrina and Rita. *Journal of the American Medical Association, 296*, 585–588.

Young, H., & Donahue, S. (2005). Focus groups on data collection tools. In F. Norris, C. Rosen, C. Elrod, & H. Young (Eds.), *Retrospective 5-year evaluation of the Crisis Counseling Program* (pp. E45–E50). White River Junction, VT: National Center for PTSD.